



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,180	09/28/2006	Djamschid Amirzadeh-Ast	DNAG-320	5207
24972	7590	01/22/2009		
FULBRIGHT & JAWORSKI, LLP			EXAMINER	
666 FIFTH AVE			COHEN, STEFANIE J	
NEW YORK, NY 10103-3198			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			01/22/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/578,180

**Applicant(s)**

AMIRZADEH-ASL ET AL.

**Examiner**

STEFANIE COHEN

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 31-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 31-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doliwa (4398946) in view of Coyle et al (3507644).

Doliwa teaches a method of homogenizing cast iron melts by adding compacts comprising hydrocarbon compounds to iron slag. Doliwa, col. 3 lines 58-63, teaches the compacts for homogenizing of the melt contain naphthalene or carbozol, which are known in the art as hydrocarbon plastics.

Although Doliwa teaches adding compacts comprising naphthalene to slag, Doliwa does not teach adding inorganic solids.

Coyle, col. 3, teaches adding TICO 90, which is a titanium additive to a grey iron melt to improve the production of gray iron. Coyle teaches associating the titanium with a carrying element for adding to the melt (col. 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add TICO 90 as taught by Coyle into the hydrocarbon containing plastic compact as taught by Doliwa because Coyle teaches titanium acts as a scavenger for

Art Unit: 1793

nitrogen and tends to eliminate pin holes in iron casting since an inert titanium nitride is precipitated which is generally recognized as a harmless inclusion. Titanium further promotes the formation of a finer grain structure, sounder castings, and improves physical properties, particularly strength and machinability. Providing the titanium and hydrocarbon containing compact together as a mixture to the melt would have been obvious to one of ordinary skill in the art as Coyle teaches associating the titanium with a carrying element for adding to the melt.

Regarding claims 32-33, Coyle, col. 3 lines 34-28, teaches the TICO 90 is preferably sized to about 20 mesh (.841 mm). Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to obtain a close to uniform particle size to ensure a uniform grain structure.

Regarding claim 34-35, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the amount of TICO 90 present in the slag because Coyle teaches that relative proportions of the titanium containing material may be varied depending upon the titanium content of the titanium containing material. Further, Coyle, teaches two typical compositions for a briquette comprises 5% and 5% by weight of TICO 90.

Regarding claim 36-37, Coyle, teaches a TICO 90 which is a synthetic titanium oxide additive available from Frankel and Co Inc.

Art Unit: 1793

Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to use synthetic titanium oxide to ensure a high percentage of titanium oxide in the final product compared to natural titanium oxide.

Regarding claim 38, Doliwa teaches using carbazol as the hydrocarbon compound which contains nitrogen.

Regarding claim 39, it would have been obvious to one of ordinary skill in the art at the time of the invention to use old plastic for the hydrocarbon compounds to save money on producing the product as a whole.

Regarding claim 40, Doliwa, col. 3 lines 58-64, teaches the compacts can contain carbazol or naphthalene in a solid form. It would have been obvious to one of ordinary skill in the art at the time of the invention to mix in the TICO 90 as taught by Coyle with a solid carbazol compound to simplify mixing techniques.

Regarding claim 41, Doliwa, col. 3 lines 58-64, teaches the compacts can contain carbazol or naphthalene in an oily form. It would have been obvious to one of ordinary skill in the art at the time of the invention to mix in the TICO 90 as taught by Coyle with an oily carbazol compound to assure that TICO 90 is evenly dispersed throughout the mixture.

Regarding claim 42, Doliwa teaches adding compacts to a slag where the compacts are solid objects.

Regarding claim 43, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the shape of the compact comprising TICO 90 and hydrocarbon plastic by grinding or shredding to obtain maximum strength and machinability of the final product.

Claims 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doliwa (4398946) in view of Coyle et al (3507644) and further in view of Jones et al (6793708).

Although Doliwa in view of Coyle teaches a hydrocarbon/titanium oxide flux introduced into a hot melt, neither teaches introducing the flux by injection.

Jones teaches a slag composition where additives are injected into the slag to control specific properties of the slag.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the injection method as taught by Jones to introduce the flux as taught by Doliwa in view of Coyle into the hot melt because the Jones method can easily monitor the amount of additives injected into the slag and therefore obtain maximum strength and machinability of the final product.

Regarding claim 45, Jones, col. 6 lines 55-60, teaches any means known in the art can be used to introduce materials to the slag within the furnace. It would have been

Art Unit: 1793

obvious to one of ordinary skill in the art at the time of the invention that any conventional method of injecting a flux in the slag as taught by Doliwa and Coyle can be used such as introducing the flux in the form of lumps as long as the method distributes the flux uniformly throughout the slag.

Claims 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doliwa (4398946) in view of Coyle et al (3507644).

Doliwa teaches a method of homogenizing cast iron melts by adding compacts comprising hydrocarbon compounds to iron slag. Doliwa, col. 3 lines 58-63, teaches the compacts for homogenizing of the melt contain naphthalene or carbozol, which are known in the art as hydrocarbon plastics.

Further, Doliwa, col. 3 lines 58-64, teaches the compacts can contain carbazol or naphthalene in a solid form. It would have been obvious to one of ordinary skill in the art at the time of the invention to mix in the TICO 90 as taught by Coyle with a solid carbazol compound to simplify mixing techniques.

Although Doliwa teaches adding compacts comprising naphthalene to slag, Doliwa does not teach adding inorganic solids.

Coyle, col. 3, teaches adding TICO 90, which is a titanium additive to a grey iron melt to improve the production of gray iron.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add TICO 90 as taught by Coyle into the hydrocarbon containing plastic compact as taught by Doliwa because Coyle teaches titanium acts as a scavenger for nitrogen and tends to eliminate pin holes in iron casting since an inert titanium nitride is

precipitated which is generally recognized as a harmless inclusion. Titanium further promotes the formation of a finer grain structure, sounder castings, and improves physical properties, particularly strength and machinability.

Further, the inorganic solids adhering to the plastic surface to form a mixture is an inherent characteristic of the flux and therefore does not further limit the claim.

Regarding claim 47, Doliwa, col. 3 lines 58-64, teaches the compacts can contain carbazol or naphthalene in a solid form. It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the shape such as granules of the compact comprising TICO 90 and hydrocarbon plastic by grinding or shredding to obtain maximum strength and machinability of the final product.

Regarding claim 48, Doliwa, col. 3 lines 58-64, teaches the compacts can contain carbazol or naphthalene in a solid form. It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the shape such as granules of the compact comprising TICO 90 and hydrocarbon plastic by grinding or shredding to obtain maximum strength and machinability of the final product.

Further, Doliwa teaches compacts comprising the plastic hydrocarbons are produced before being introduced into the slag. It would have been obvious to one of ordinary skill in the art at the time of the invention to introduce the TICO 90 as taught by Coyle during the production of the plastic hydrocarbons to assure the TICO 90 is evenly distributed throughout the compact.



Claim 31-37 and 39-48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neuer et al (5376160) in view of Coyle et al (3507644).

Neuer teaches a wire filling which contains a compound that splits off gas based on an organic polymer such as polyethylene. The polyethylene is then injected into a slag.

Although Neuer teaches adding compacts comprising naphthalene to slag, Neuer does not teach adding inorganic solids.

Coyle, col. 3, teaches adding TICO 90, which is a titanium additive to a grey iron melt to improve the production of gray iron.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add TICO 90 as taught by Coyle into the polyethylene wire filling because Coyle teaches titanium acts as a scavenger for nitrogen and tends to eliminate pin holes in iron casting since an inert titanium nitride is precipitated which is generally recognized as a harmless inclusion. Titanium further promotes the formation of a finer grain structure, sounder castings, and improves physical properties, particularly strength and machinability. Providing the titanium and polyethylene together as a mixture to the melt would have been obvious to one of ordinary skill in the art as Coyle teaches associating the titanium with a carrying element for adding to the melt.

Regarding claims 32-33, Coyle, col. 3 lines 34-28, teaches the TICO 90 is preferably sized to about 20 mesh (.841 mm). Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to obtain a close to uniform particle size to ensure a uniform grain structure.

Regarding claim 34-35, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the amount of TICO 90 present in the slag because Coyle teaches that relative proportions of the titanium containing material may be varied depending upon the titanium content of the titanium containing material. Further, Coyle, teaches two typical compositions for a briquette comprises 5% and 5% by weight of TICO 90.

Regarding claim 36-37, Coyle, teaches a TICO 90 which is a synthetic titanium oxide additive available from Frankel and Co Inc.

Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to use synthetic titanium oxide to ensure a high percentage of titanium oxide in the final product compared to natural titanium oxide.

Regarding claim 39, it would have been obvious to one of ordinary skill in the art at the time of the invention to use old plastic for the hydrocarbon compounds to save money on producing the product as a whole.

Regarding claim 41, it would have been obvious to one of ordinary skill in the art at the time of the invention that the same properties of the slag would be achieved if the plastic was introduced to the inorganic solids in molten form.

Regarding claim 42, both the plastic and the TICO 90 are in solid form.

Regarding claim 43, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the shape of the compact comprising TICO 90 and hydrocarbon plastic by grinding or shredding to obtain maximum strength and machinability of the final product.

Regarding claim 44, Neuer, example 1, teaches the polyethylene being injected into the slag.

Regarding claim 45, It would have been obvious to one of ordinary skill in the art at the time of the invention that any conventional method of injecting a flux in the slag such as introducing the flux in the form of lumps can be used as long as the method distributes the flux uniformly throughout the slag.

Regarding claim 46, the inorganic solids adhering to the plastic surface to form a mixture is an inherent characteristic of the flux and therefore does not further limit the claim.

Regarding claim 47, Neuer teaches the polyethylene is present in granule form.

Regarding claim 48, it would have been obvious to one of ordinary skill in the art at the time of the invention to introduce the TICO 90 as taught by Coyle during the production of the polyethylene granules to assure the TICO 90 is evenly distributed throughout the granule.

***Response to Arguments***

Applicant's arguments, filed 11/5/2008, with respect to the rejection(s) of claim(s) 16-30 under Lailach and Lailach in view of Buysch have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Neuer in view of Coyle, Doliwa in view of Coyle and Doliwa in view of Coyle and Jones.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEFANIE COHEN whose telephone number is (571)270-5836. The examiner can normally be reached on Monday through Thursday 9:3am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 5712721234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stefanie Cohen

1/15/2009

SC

January 16, 2009

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793keep